Technical Support Working Group
Combating Terrorism Technical Support Office
Technical Brief

Tactical Driving Simulation Tool

Background: The protection of personnel, and in particular those individuals deemed "high value targets" by opposition elements, is a difficult proposition. Those engaged in protective details must be aware and responsive across all of the logistical requirements of a VIP's schedule. Security personnel must be able to continually assess the environment for threats and make decisions regarding appropriate type/level of response. The Tactical Driving Simulation Tool was developed to train personnel to make more effective decisions in crisis situations.

Requirement or Problem: The planning and execution of operations to safely transport VIPs via protective motorcades is one that requires substantial training and experience. The focus of the project (the "requirement") was to develop a realistic virtual tactical driving simulation that could be leveraged (as part of a larger curriculum) to teach trainees critical decision making skills under rapidly changing situations.

Technical Description: The product is an interactive, multimedia (video-game like) software-based simulator that can be used to train individuals involved in motorcade and vehicle-focused protective details. Individuals guide themselves ("avatars") in a virtual environment, are tasked with and execute virtual protective detail activities and missions in collaboration with other trainees, and are scored on performance and achievements (in an after-action review by human observers/trainers). The simulation includes aspects common to many interactive video-game style simulations (such as moving the avatar through the environment, driving virtual vehicles, leveraging virtual weapons to take down threats, and so on); however the focus is on teaching the user how to assess events, make appropriate decisions, and leverage tools and techniques to achieve the best possible outcome. Up to 30 individuals can participate in the simulation simultaneously, and a number of basic "skeleton" scenarios have been developed to assist with training. The simulator includes an interactive observer mode for the trainer as well as an "after action" tool to help trainers better review performance with trainees (via "playbacks" of the exercise). In addition to the main simulation, tools have been developed and provided that assist with the "scripting" of events and easy modification or authoring of new scenarios. The system has been developed for COTS PC hardware and delivered to users at USSS, DoS, and PFPA.

Advantages & Limitations*:* The product offers several key features that differentiate it

from other, semi-related systems. First, it leverages realistic, real-time vehicle dynamics models so as to reasonably approximate real-world performance. This is substantially different than many game-like simulations whose driving dynamics are unrealistic. Second, the system is highly flexible, and almost any scenario and content can be created/incorporated using the provided tools (in conjunction with standard desktop modeling and art packages). Third, it provides a sophisticated after-action capability that allows trainers and trainees to view what occurred from any angle or direction, as well as hear the live-action radio calls being used by the trainees. Fourth, the system runs on COTs PC hardware and is available (along with tools) free of charge to U.S. government organizations. One limitation is that the software cannot run on non-graphics oriented (business-class) video cards and PCs, but rather needs PCs with gaming-class video cards and performance. Another limitation is that the creation of art content requires some reasonable knowledge of digital design tools and methodologies.

Characteristics Statements and Specifications: The product is cutting-edge simulation software that runs on one or more COTs PCs running Windows XP/7 and connected via a standard LAN-style networking setup. A typical classroom configuration is 5-30 PCs (Core 2 Duo or better, 4GB ram, Nvidia GeForce 8000 or better), Logitech G27 steering controllers, a 24 port router/switch, and all necessary cabling and power accessories. The product supports desktops and laptops and can leverage multi-head monitor configurations.

Test and Evaluation Results*:* The software has been thoroughly tested and was recently delivered to end users for further review and use. User contacts may be obtained via request to ttdsubgroup@cttso.gov.

Acquisition and Support Pricing: The software product (including content generation tools) is available free of charge to government users. Training, support, addition of features, further content development, installation of a “classroom” setup of systems, etc. can be contracted through the vendor on a flexible basis via existing TSWG contract or another mechanism.

Government users may obtain the software via e-mail request to ttdsubgroup@cttso.gov.

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